RELATIONSHIP BETWEEN LEAN SYSTEM AND SMALL MEDIUM ENTERPRISES (SMEs) PERFORMANCE

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DEDICATION

To my father who sacrifices to help me fulfil my ambitions,

To my mother who encourages me to choose this path,

To the soul of my grandparents,

To my sisters, brother and family,

Your continuous support, patience and love made me stronger and better person,

Whenever I feel weak, I will remember those who make me strong,

Whenever I start to doubt myself, I will remember those who believe in me.

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ABSTRACT

Lean system has attracted many researchers and practitioners since its remarkable achievement was broadly reported and had become a widely-research topic. It is fair to state that some research gaps still exist. This study aims to examine the status of lean system implementation and its impact on the operational performance of Small and Medium Enterprises (SMEs), thereby to develop a Lean System Performance Model (LSPM) to facilitate successful lean system implementation considering the uncertainty business environment of the manufacturing sector in Malaysia. A quantitative research methodology with a survey method was employed to achieve the aim of this study. The target respondents were managerial level as they have more information related to the company and knowledge of continuous improvement strategy such as lean system. The combination of socio-technical system theory and contingency theory underpinned the relationship between lean system, operational performance and business environment. The Structural Equation Modelling (SEM) using SmartPLS software was applied to verify the research framework drawing on a sample of 210 SMEs operating in Malaysia manufacturing industry. The SEM analysis proved hard and soft lean practices have a significant impact on operational performance as measured by cost, quality, delivery and flexibility. Further analysis revealed the synergy effect between hard and soft lean practices predicting higher operational performance, in term of cost, quality, delivery and flexibility indicator. Thus, it is recommended that SMEs should consider applying soft and hard practices simultaneously rather than focusing on the specific lean practices. Robustness test confirmed the uncertainty business environment, such as competitive intensity moderates the relationship between lean system and operational performance. This study offers a new understanding of the effect on business environment and suggests SMEs should be aware of threat from the uncertainty business environment during lean system implementation.

ABSTRAK

Sistem kejat telah menarik perhatian penyelidik dan pengamal memandangkan pencapaian yang luar biasa serta sering menjadi pilihan topik penyelidikan. Namum, masih ada jurang kajian yang wujud. Maka, kajian ini dilakukan untuk mengkaji tahap perlaksanaan sistem kejat dan impak terhadap prestasi Perusahaan Kecil dan Sederhana (PKS), dengan membina Model Prestasi Sistem Kejat dan mengambilkira faktor persekitaran luaran organisasi yang tidak menentu di Malaysia. Kajian ini menggunakan metodologi penyelidikan kuantitatif iaitu kaedah soal selidik untuk mencapai objektif kajian. Kajian ini melibatkan responden diperingkat pengurusan atasan organisasi kerana mereka mempunyai maklumat berkaitan strategi penambahbaikan seperti sistem kejat. Kajian ini menggabungkan penggunaan dua teori iaitu teori sosio-teknikal sistem dan teori kontingensi untuk menghubungkan tiga topik kesusateraan iaitu sistem kejat, prestasi organisasi dan persekitaran organisasi. Kaedah Permodelan Persamaan Berstruktur (SEM) dengan menggunakan perisian SmartPLS digunakan untuk menganalisis sampel berdasarkan 210 data responden yang terdiri daripada PKS yang beroperasi dalam industri pembuatan di Malaysia. Analisis Permodelan Persamaan Berstruktur menunjukkan amalan teknikal dan sosial memberi impak yang signifikan terhadap prestasi organisasi yang diukur sebagai kos, kualiti, penghantaran tepat masa dan fleksibiliti. Analisis seterusnya telah membuktikan kesan sinergi antara amalan teknikal dan sosial telah menunjukkan perubahan prestasi organisasi yang lebih tinggi dari aspek kos, kualiti, penghantaran tepat masa dan fleksibiliti. Oleh itu, PKS disarankan untuk menggunakan amalan teknikal dan sosial secara serentak dan tidak hanya fokus kepada amalan tertentu sahaja ketika melaksanakan sistem kejat. Kemudian, ujian pengukuhan mengesahkan persekitaran organisasi yang kompetitif telah menyederhanakan hubungan antara sistem kejat dan prestasi organisasi. Kajian ini memberi penemuan baru mengenai kesan persekitaran organisasi dan mencadangkan PKS harus peka terhadap ancaman persekitaran organisasi yang tidak menentu ketika melaksanakan sistem kejat.

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LIST OF SYMBOLS AND ABBREVIATIONS

AFTA	-	ASEAN Free Trade Agreement
ASEAN	-	Association of Southeast Asian Nations
CFA	-	Confirmatory Factor Analysis
CT	-	Contingency Theory
EU GSP	-	European Union Generalised System of Preferences
e.g.	-	which means “for example”
i.e.	-	which means “that is”
FMM	-	Federation of Malaysian Manufacturers
FTA	-	Free Trade Agreement
GDP	-	Gross Domestic Product
LEs	-	Large Enterprises
MPC	-	Malaysian Productivity Corporation
MNC	-	Multinational Corporation or Company
N/A		Not applicable
NSDC	-	National SME Development Council
PLS-SEM	-	Partial Least Squares-Structural Equations Modeling
QMS	-	Quality Management System
SLR	-	Systematic Literature Review
SMEs	-	Small Medium Enterprises
STS	-	Socio-technical Systems Theory
TPPA	-	Trans-Pacific Partnership Agreement
TPS	-	Toyota Production System

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter is set to provide the research background and highlights the research problems which emphasis on managerial issues and theoretical gaps. Based on this, the research questions are developed which is then followed by the research objectives. The scope of the research followed by the significance and contribution of the research are also being discussed. Subsequently, the chapter is concluded with a summary of the thesis structure.

1.2 Background of the Research

Small and Medium Enterprises (SMEs) are the backbone of the local economy and a key catalyst toward navigating Malaysia to reach high-income nation by 2020 (SME Corporation Malaysia, 2016). As stated in the SME Annual Report 2015/2016 (p.20), SMEs contribution to Gross Domestic Product (GDP) increased gradually from 32.2% in 2010 to 36.3% in 2015. The Malaysian government announced in The 11th Malaysia Plan (2016) to focus on developing resilient and sustainable SMEs toward reaching wide-ranging and stable economic growth. Furthermore, it is supported by a meticulous plan in SME Master Plan (2012-2020) which was aimed to ensure that SMEs can expand across all industries.

REFERENCES

Abdullah, A. (2012). Lean Manufacturing Implementation in SMEs : A Malaysian Companies Perspective. Lean Business System. Retrieved from http://versys.uitm.edu.my/prisma/view/viewPdf.php?pid=9957

Ablanedo-Rosas, J. H., Alidaee, B., Moreno, J. C., & Urbina, J. (2010). Quality improvement supported by the 5S, an empirical case study of Mexican organisations. *International Journal of Production Research*, *48*(23), 7063–7087. https://doi.org/10.1080/00207540903382865

Abolhassani, A., Ky, L., & Gopalakrishnan, B. (2016). Lean and US manufacturing industry : popularity of practices and implementation barriers. *International Journal of Productivity and Performance Management*, *65*(7), 875–897. https://doi.org/org/10.1108/MRR-09-2015-0216

Achanga, P., Shehab, E., Roy, R., & Nelder, G. (2006). Critical success factors for lean implementation within SMEs. *Journal of Manufacturing Technology Management*, *17*(4), 460–471. https://doi.org/10.1108/17410380610662889

Adler, N., & Docherty, P. (1998). Bringing business into sociotechnical theory and practice. *Human Relations*, *51*(3), 1998. https://doi.org/10.1177/001872679805100306

Agarwal, R., Green, R., Brown, P. J., Tan, H., & Randhawa, K. (2013). Determinants of quality management practices: An empirical study of New Zealand manufacturing firms. *International Journal of Production Economics*, *142*(1), 130–145. https://doi.org/10.1016/j.ijpe.2012.09.024

Agus, A., & Hajinoor, M. S. (2012). Lean production supply chain management as driver towards enhancing product quality and business performance: Case study of manufacturing companies in Malaysia. *International Journal of Quality & Reliability Management*, *29*(1), 92–121. https://doi.org/10.1108/02656711211190891

Ahmad, S., & Schroeder, R. G. (2003). The impact of human resource management practices on operational performance: recognizing country and industry differences. *Journal of Operations Management*, *21*(1), 19–43. https://doi.org/10.1016/S0272-6963(02)00056-6

Ahmad, S. Z., & Xavier, S. R. (2012). Entrepreneurial environments and growth: evidence from Malaysia GEM data. *Journal of Chinese Entrepreneurship*, *4*(1), 50–69. https://doi.org/10.1108/17561391211200939

Ahmed, S., Hassan, M., & Taha, Z. (2004). State of implementation of TPM in SMIs: a survey study in Malaysia. *Journal of Quality in Maintenance Engineering*,

10(2), 93–106. https://doi.org/10.1108/13552510410539178

Al-Zu'bi, Z. M. F. (2015). Examining the Impact of Lean Practices on Flexibility Performance: The Moderating Effect of Environmental Dynamism. *Engineering Management Research*, *4*(2), 54–69. https://doi.org/10.5539/emr.v4n2p54

Alagaraja, M., & Egan, T. (2013). The strategic value of HRD in lean strategy implementation. *Human Resource Development Quarterly*, *24*(1), 1–27. https://doi.org/10.1002/hrdq.21155

Alcaraz, J. L. G., Maldonado, A. A., Iniesta, A. A., Robles, G. C., & Hernandez, G. A. (2014). A systematic review/survey for JIT implementation: Mexican maquiladoras as case study. *Computers in Industry*, *65*(4), 761–773. https://doi.org/10.1016/j.compind.2014.02.013

Aldrich, H. (1979). *Organizations and Environments*. Englewood Cliffs, NJ: Prentice-Hall.

Ali, N. N. K., Choong, C. W., & Jayaraman, K. (2016). Critical success factors of Lean Six Sigma practices on business performance in Malaysia. *International Journal of Productivity and Quality Management*, *17*(4), 456–473. https://doi.org/10.13140/RG.2.1.3290.0968

Alsmadi, M., Almani, A., & Jerisat, R. (2012). A comparative analysis of Lean practices and performance in the UK manufacturing and service sector firms. *Total Quality Management & Business Excellence*, *23*(3–4), 381–396. https://doi.org/10.1080/14783363.2012.669993

Alukal, G. (2003). Create a Lean, Mean Machine. *Quality Progress*, *36*, 29–35.

Alves, A. C., Dinis Carvalho, J., & Sousa, R. M. (2012). Lean production as promoter of thinkers to achieve companies' agility. *The Learning Organization*, *19*(3), 219–237. https://doi.org/10.1108/09696471211219930

Amoako Gyampah, K., & Gargeya, V. B. (2001). Just-in-time manufacturing in Ghana. *Industrial Management & Data Systems*, *101*(3), 106–113. https://doi.org/10.1108/02635570110386562

Anderson, J. C. (1987). An approach for confirmatory measure- ment and structural equation modeling of organizational properties. *Management Science*, *33*(4), 525–541. https://doi.org/10.1287/mnsc.33.4.525

Appelbaum, S. H. (1997). Socio-technical systems theory: an intervention strategy for organizational development. *Management Decision*, *35*(6), 452–463. https://doi.org/10.1108/00251749710173823

Appiah-Adu, K. (1998). Market Orientation and Performance: Do The Findings Established in Large Firms Hold in The Small Business Sector? *Journal of Euromarketing*, *6*(3), 1–26. https://doi.org/10.1300/J037v06n03

Asia Regional Integration Center. (2015). Status by Country/Economy Free Trade Agreements. Retrieved January 19, 2017, from https://aric.adb.org/fta-trends-by-

country

Association of Business Schools. (2015). *ABS Academic Journal Guide*. London. Retrieved from www.associationofbusinessschools.org%0A

Azadegan, A., Patel, P. C., Zangoueinezhad, A., & Linderman, K. (2013). The effect of environmental complexity and environmental dynamism on lean practices. *Journal of Operations Management*, *31*(4), 193–212. https://doi.org/10.1016/j.jom.2013.03.002

Bagozzi, R. P., & Yi, Y. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94. https://doi.org/10.1007/BF02723327

Baron, R. M., & Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Bayo-Moriones, A., Bello-Pintado, A., & Diaz-de-Cerio, J. M. (2010). 5S use in manufacturing plants: Contextual factors and impact on operating performance. *International Journal of Quality and Reliability Management*, *27*(2), 217–230. https://doi.org/10.1108/02656711011014320

Bayo Moriones, A., Bello Pintado, A., & Merino-Diaz-de-Cerio, J. (2008). The role of organizational context and infrastructure practices in JIT implementation. *International Journal of Operations & Production Management*, *28*(11), 1042–1066. https://doi.org/10.1108/01443570810910188

Belekoukias, I., Garza-Reyes, J. A., & Kumar, V. (2014). The impact of lean methods and tools on the operational performance of manufacturing organisations. *International Journal of Production Research*, *52*(18), 5346–5366. https://doi.org/10.1080/00207543.2014.903348

Belle, G. van. (2008). *Statistical Rules of Thumb* (2nd ed.). New York: Wiley.

Bevilacqua, M., Ciarapica, F. E., & De Sanctis, I. (2016). Lean practices implementation and their relationships with operational responsiveness and company performance: an Italian study. *International Journal of Production Research*, *55*(3), 769–794. https://doi.org/10.1080/00207543.2016.1211346

Bhamu, J., & Sangwan, K. S. (2014). Lean manufacturing: literature review and research issues. *International Journal of Operations & Production Management*, *34*(7), 876–940.

Bhasin, S. (2012a). An appropriate change strategy for lean success. *Management Decision*, *50*(3), 439–458. https://doi.org/10.1108/00251741211216223

Bhasin, S. (2012b). Performance of Lean in large organisations. *Journal of Manufacturing Systems*, *31*, 349–357. https://doi.org/10.1016/j.jmsy.2012.04.002

Bhasin, S. (2012c). Prominent obstacles to lean. *International Journal of Productivity and Performance Management*, *61*(4), 403–425. https://doi.org/10.1108/17410401211212661

Bhasin, S. (2013). Analysis of whether Lean is viewed as an ideology by British organizations. *Journal of Manufacturing Technology Management*, *24*(4), 536–554. https://doi.org/10.1108/17410381311327396

Bhasin, S., & Burcher, P. (2006). Lean viewed as a philosophy. *Journal of Manufacturing Technology Management*, *17*(1), 56–72. https://doi.org/10.1108/17410380610639506

Birdi, K., Clegg, C. W., Patterson, M., Robinson, A., Stride, C. B., Wall, T. D., & Wood, S. J. (2008). The impact of human resource and operational management practices on company productivity: A longitudinal study. *Personnel Psychology*, *61*(3), 467–501. https://doi.org/10.1111/j.1744-6570.2008.00136.x

Birkie, S. E. (2016a). Operational resilience and lean: in search of synergies and trade-offs. *Journal of Manufacturing Technology Management*, *27*(2), 185–207. https://doi.org/10.1108/JMTM-07-2015-0054

Birkie, S. E., & Trucco, P. (2016b). Understanding dynamism and complexity factors in engineer-to-order and their influence on lean implementation strategy. *Production Planning & Control*, *27*(5), 345–359. https://doi.org/10.1080/09537287.2015.1127446

Bonavia, T., & Marin-Garcia, J. A. (2011). Integrating human resource management into lean production and their impact on organizational performance. *International Journal of Manpower*, *32*(8), 923–938. https://doi.org/10.1108/01437721111181679

Bonavia, T., & Marin, J. A. (2006). An empirical study of lean production in the ceramic tile industry in Spain. *International Journal of Operations & Production Management*, *26*(5), 505–531. https://doi.org/10.1108/01443570610659883

Booth, A., Papaioannou, D., & Sutton, A. (2012). *Systematic Approaches to a Successful Literature Review*. SAGE.

Bortolotti, T., Boscari, S., & Danese, P. (2015a). Successful lean implementation: Organizational culture and soft lean practices. *International Journal of Production Economics*, *160*, 182–201. https://doi.org/10.1016/j.ijpe.2014.10.013

Bortolotti, T., Danese, P., Flynn, B. B., & Romano, P. (2015b). Leveraging fitness and lean bundles to build the cumulative performance sand cone model. *International Journal of Production Economics*, *162*, 227–241. https://doi.org/10.1016/j.ijpe.2014.09.014

Bortolotti, T., Danese, P., & Romano, P. (2013). Assessing the impact of just-in-time on operational performance at varying degrees of repetitiveness. *International Journal of Production Research*, *51*(4), 1117–1130. https://doi.org/10.1080/00207543.2012.678403

Boyer, K. K., & Lewis, M. W. (2002). Competitive Priorities: Investigating The Need For Trade-Offs In Operations Strategy. *Production and Operations Management*, *11*(1), 9–20. https://doi.org/10.1111/j.1937-5956.2002.tb00181.x

Bradburn, N. M., Sudman, S., & Wansink, B. (2004). *Asking Questions: The Definitive Guide to Questionnaire Design-For Market Research, Political Polls, and Social and Health Questionnaires* (2nd ed.). John Wiley & Sons, Ltd.

Bryman, A. (2016). *Social Research Methods* (5th ed.). New York: Oxford University Press.

Bryman, A., & Bell, E. (2015). *Business Research Methods* (4th ed.). UK: Oxford University Press.

Burgess, N., & Radnor, Z. (2013). Evaluating Lean in healthcare. *International Journal of Health Care Quality Assurance*, *26*(3), 220–235. https://doi.org/10.1108/09526861311311418

Calarge, F. A., Pereira, F. H., Satolo, E. G., & Diaz, L. E. C. (2012). Evaluation of Lean Production System by using SAE J4000 standard: Case study in Brazilian and Spanish automotive component manufacturing organizations. *African Journal of Business Management*, *6*(49), 11839–11850. https://doi.org/10.5897/AJBM12.465

Callen, J. L., Fader, C., & Krinsky, I. (2000). Just-in-time: A cross-sectional plant analysis. *International Journal of Production Economics*, *63*(3), 277–301. https://doi.org/10.1016/S0925-5273(99)00025-0

Calvo-Mora, A., Picon, A., Ruiz, C., & Cauzo, L. (2013). The relationships between soft-hard TQM factors and key business results. *International Journal of Operations & Production Management*, *34*(1), 115–143. https://doi.org/10.1108/IJOPM-09-2012-0355

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, *56*(2), 81–105. https://doi.org/10.1037/h0046016

Challis, D., Samson, D., & Lawson, B. (2005). Impact of technological, organizational and human resource investments on employee and manufacturing performance: Australian and New Zealand evidence. *International Journal of Production Research*, *43*(1), 81–107. https://doi.org/10.1080/00207540412331281935

Chan, F., Yusuff, R. M., & Zulkifli, N. (2015). Barriers to Advanced Manufacturing Technology in small-medium enterprises (SMEs) in Malaysia. In *2nd International Symposium on Technology Management and Emerging Technologies, ISTMET 2015* (pp. 412–416). https://doi.org/10.1109/ISTMET.2015.7359069

Chauhan, G., & Singh, T. P. (2012). Measuring parameters of lean manufacturing realization. *Measuring Business Excellence*, *16*(3), 57–71. https://doi.org/10.1108/13683041211257411

Chavez, R., Gimenez, C., Fynes, B., Wiengarten, F., & Yu, W. (2013). Internal lean practices and operational performance: The contingency perspective of industry clockspeed. *International Journal of Operations & Production Management*, *33*(5), 562–588. https://doi.org/10.1108/01443571311322724

Chavez, R., Yu, W., Jacobs, M., Fynes, B., Wiengarten, F., & Lecuna, A. (2015). Internal lean practices and performance: The role of technological turbulence. *International Journal of Production Economics*, *160*, 157–171. https://doi.org/10.1016/j.ijpe.2014.10.005

Chen, Z. X., & Tan, K. H. (2013). The impact of organization ownership structure on JIT implementation and production operations performance. *International Journal of Operations & Production Management*, *33*(9), 1202–1229. https://doi.org/10.1108/IJOPM-06-2011-0207

Chi, T. (2010). Corporate competitive strategies in a transitional manufacturing industry: An empirical study. *Management Decision*, *48*(6), 976–995. https://doi.org/10.1108/00251741011053497

Chin, W. W. (1998). The Partial Least Squares Approach to Structural Equation Modeling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research* (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum Associates.

Chin, W. W. (2010). How to Write Up and Report PLS Analyses. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Application* (pp. 655–690). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-540-32827-8

Chong, H., White, R. E., & Prybutok, V. (2001). Relationship among organizational support, JIT implementation, and performance. *Industrial Management and Data Systems*, *101*(5–6), 273–280. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-0035780966&partnerID=40&md5=ceed637de96338c88f59673ecff1bd9d

Christiansen, T., Berry, W. L., Bruun, P., & Ward, P. T. (2003). A mapping of competitive priorities, manufacturing practices, and operational performance in groups of Danish manufacturing companies. *International Journal of Operations & Production Management*, *23*(10), 1163–1183. https://doi.org/10.1108/01443570310496616

Clegg, C. W., Wall, T. D., Pepper, K., Stride, C., Woods, D., Morrison, D., … Kogi, K. (2002). An international survey of the use and effectiveness of modern manufacturing practices. *Human Factors and Ergonomics In Manufacturing*, *12*(2), 171–191. https://doi.org/10.1002/hfm.10006

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates.

Collis, J., & Hussey, R. (2013). *Business research: a practical guide for undergraduate and postgraduate students* (3rd ed.). London: Palgrave Macmillan.

Comm, C. L., & Mathaisel, D. F. (2000). A paradigm for benchmarking lean initiatives for quality improvement. *Benchmarking: An International Journal*, *7*(2), 118–128. https://doi.org/10.1108/14635770010298584

Cooney, R. (2002). Is "lean" a universal production system? *International Journal of Operations & Production Management*, *22*(10), 1130–1147. https://doi.org/10.1108/01443570210446342

Cooper, R. (1996). Lean enterprises and the confrontation strategy. *Academy of Management Perspectives*, *10*(3), 28–39. https://doi.org/10.5465/AME.1996.9704111472

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). USA: SAGE Publications.

Cronbach, L. J. (1951). Coefficient Alpha and The Internal Structure of Tests. *Psychometrika*, *16*(3), 297–334. https://doi.org/10.1007/BF02310555

Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. SAGE.

Cua, K. O., McKone, K. E., & Schroeder, R. G. (2001). Relationships between implementation of TQM, JIT, and TPM and manufacturing performance. *Journal of Operations Management*, *19*, 675–694.

Cua, K. O., McKone, K. E., & Schroeder, R. G. (2006). Improving Performance through an Integrated Manufacturing Program. *The Quality Management Journal*, *13*(3), 45–60. Retrieved from http://proquest.umi.com/pqdweb?did=1080780981&Fmt=7&clientId=35935&RQT=309&VName=PQD

Dabhilkar, M., & Ahlstrom, P. (2013). Converging production models: the STS versus lean production debate revisited. *International Journal of Operations & Production Management*, *33*(8), 1019–1039. https://doi.org/10.1108/IJOPM-08-2012-0316

Dahlgaard, J. J., & Dahlgaard-Park, S. M. (2006). Lean production, six sigma quality, TQM and company culture. *The TQM Magazine*, *18*(3), 263–281. https://doi.org/10.1108/09544780610659998

Dal Pont, G., Furlan, A., & Vinelli, A. (2008). Interrelationships among lean bundles and their effects on operational performance. *Operations Management Research*, *1*(2), 150–158. https://doi.org/10.1007/s12063-008-0010-2

Danese, P., Romano, P., & Bortolotti, T. (2012). JIT production, JIT supply and performance: investigating the moderating effects. *Industrial Management & Data Systems*, *112*(3), 441–465. https://doi.org/10.1108/02635571211210068

Dankbaar, B. (1997). Lean Production: Denial, Confirmation or Extension of Sociotechnical Systems Design? *Human Relations*, *50*(5), 567–583. https://doi.org/10.1177/001872679705000505

Das, A., & Jayaram, J. (2007). Socio-technical perspective on manufacturing system synergies. *International Journal of Production Research*, *45*(1), 169–205. https://doi.org/10.1080/00207540500381039

De Treville, S., & Antonakis, J. (2006). Could lean production job design be intrinsically motivating? Contextual, configurational, and levels-of-analysis issues. *Journal of Operations Management*, *24*(2), 99–123. https://doi.org/10.1016/j.jom.2005.04.001

Dean, J. W., & Snell, S. A. (1996). The Strategic Use of Integrated Manufacturing: an Empirical Examination. *Strategic Management Journal*, *17*(6), 459–480. https://doi.org/10.1002/(SICI)1097-0266(199606)17:6<459::AID-SMJ823>3.0.CO;2-8

Department of Statistics Malaysia. (2016). SMEs' Contribution to Exports. Retrieved November 19, 2016, from http://www.smecorp.gov.my/index.php/en/policies/2015-12-21-09-09-49/sme-statistics

Dess, G. G., & Beard, D. W. (1984). Dimensions of Organizational Task Environments. *Administrative Science Quarterly*, *29*(1), 52–73. https://doi.org/10.2307/2393080

Diamantopoulos, A., & Hart, S. (1993). Linking market orientation and company performance: Preliminary evidence on Kohli and Jaworski's framework. *Journal of Strategic Marketing*, *1*(2), 93–121. https://doi.org/10.1080/09652549300000007

Donaldson, L. (2006). The Contingency Theory of Organizational Design: Challenges and Opportunities. In R. M. Burton, D. D. Håkonsson, B. Eriksen, & C. C. Snow (Eds.), *Organization Design* (Vol. 6, pp. 14–40). Springer US. https://doi.org/10.1007/0-387-34173-0

Doolen, T. L., & Hacker, M. E. (2005). A review of lean assessment in organizations: An exploratory study of lean practices by electronics manufacturers. *Journal of Manufacturing Systems*, *24*(1), 55–67. https://doi.org/10.1016/S0278-6125(05)80007-X

Dora, M., Kumar, M., Van Goubergen, D., Molnar, A., & Gellynck, X. (2013). Operational performance and critical success factors of lean manufacturing in European food processing SMEs. *Trends in Food Science & Technology*, *31*(2), 156–164. https://doi.org/10.1016/j.tifs.2013.03.002

Dora, M., Van Goubergen, D., Kumar, M., Molnar, A., & Gellynck, X. (2014). Application of lean practices in small and medium-sized food enterprises. *British Food Journal*, *116*(1), 125–141. https://doi.org/10.1108/BFJ-05-2012-0107

Drazin, R., & Van de Ven, A. H. (1985). Alternative Forms of Fit in Contingency Theory. *Administrative Science Quarterly*, *30*(4), 514–539. https://doi.org/10.2307/2392695

Duncan, R. B. (1972). Characteristics of Organizational Environments and Perceived

Environmental Uncertainty. *Administrative Science Quarterly*, *17*(3), 313–327. https://doi.org/10.2307/2392145

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2012). *Management Research* (4th ed.). SAGE Publications Ltd.

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2015). *Management and Business Research* (5th ed.). SAGE Publications Ltd.

Ebrahimpour, M., & Withers, B. E. (1993). A comparison of manufacturing management in JIT and non-JIT firms. *International Journal of Production Economics*, *32*(3), 355–364. https://doi.org/10.1016/0925-5273(93)90048-P

Economic Planning Unit. (2016). *Strategy Paper 19: Energising Manufacturing Sector*. Putrajaya, Malaysia. Retrieved from www.epu.gov.my

Eisenhart, M. (1991). Conceptual Frameworks for Research Circa 1991: Ideas from a Cultural Anthropologist; Implications for Mathematics Education Researchers. In R. G. Underhill (Ed.), *Proceeding of the Thirtheenth Annual Meeting: Psychology of Mathematics Education* (pp. 202–219). Virgina, USA: Christiansburg Printing Company. Inc.

Emery, F. E., & Trist, E. (1965). The Causal Texture of Organizational Environments. *Human Relations*, *18*(1), 21–32. https://doi.org/10.1177/001872676501800103

Emiliani, M. L. (2003). Linking leaders' beliefs to their behaviors and competencies. *Management Decision*, *41*(9), 893–910. https://doi.org/10.1108/00251740310497430

Emiliani, M. L., & Emiliani, M. (2013). Music as a framework to better understand Lean leadership. *Leadership & Organization Development Journal*, *34*(5), 407–426. https://doi.org/10.1108/LODJ-11-0088

Emiliani, M. L., & Stec, D. J. (2005). Leaders lost in transformation. *Leadership & Organization Development Journal*, *26*(5), 370–387. https://doi.org/10.1108/01437730510607862

Ernst & Young Global Limited. (2018). *ASEAN SMEs Are you transforming for the future?* Retrieved from http://www.dnb.com.sg/pdfN/newsletter/ey-asean-smes-are-you-transforming-for-the-future.pdf

Eroglu, C., & Hofer, C. (2011). Lean, leaner, too lean? The inventory-performance link revisited. *Journal of Operations Management*, *29*(4), 356–369. https://doi.org/10.1016/j.jom.2010.05.002

Eroglu, C., & Hofer, C. (2014). The effect of environmental dynamism on returns to inventory leanness. *Journal of Operations Management*, *32*(6), 347–356. https://doi.org/10.1016/j.jom.2014.06.006

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191.

https://doi.org/10.3758/BF03193146

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). London, UK: SAGE.

Fine, C. H. (2010). *Clockspeed: Winning Industry Control in the Age of Temporary Advantage* (large prin). ReadHowYouWant.

Fink, A. (2015). *How to Conduct Surveys: A Step-by-Step Guide* (6th ed.). SAGE Publications.

Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management*, *28*(1), 58–71. https://doi.org/10.1016/j.jom.2009.06.001

Flynn, B. B., Sakakibara, S., & Schroeder, R. G. (1995a). Relationship Between JIT and TQM: Practices and Performance. *Academy of Management Journal*, *38*(5), 1325–1360. https://doi.org/10.2307/256860

Flynn, B. B., Schroeder, R. G., & Sakakibara, S. (1995b). The Impact of Quality Management Practices on Performance and Competitive Advantage. *Decision Sciences*, *26*(5), 659–691. https://doi.org/10.1111/j.1540-5915.1995.tb01445.x

FMM. (2014). *FMM Directory of Malaysian Industries 2014* (45th ed.). Kuala Lumpur, Malaysia: Federation of Malaysian Manufacturers.

Fornell, C. (1982). *A Second Generation of Multivariate Analysis: Methods*. (C. Fornell, Ed.). New York: Praeger.

Fornell, C., & Larcker, D. F. (1981a). Evaluating Structural Equation Models with Unobserved Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.2307/3151312

Fornell, C., & Larcker, D. F. (1981b). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, *18*(3), 382–388. https://doi.org/10.2307/3150980

Forrester, P. L., Shimizu, U. K., Soriano-Meier, H., Garza-Reyes, J. A., & Basso, L. F. C. (2010). Lean production, market share and value creation in the agricultural machinery sector in Brazil. *Journal of Manufacturing Technology Management*, *21*(7), 853–871.

Forza, C. (2002). Survey research in operations management: a process-based perspective. *International Journal of Operations & Production Management*, *22*(2), 152–194. https://doi.org/10.1108/01443570210414310

Fotopoulos, C. B., & Psomas, E. (2009). The impact of "soft" and "hard" TQM elements on quality management results. *International Journal of Quality & Reliability Management*, *26*(2), 150–163. https://doi.org/10.1108/02656710910928798

Fox, W. M. (1995). Sociotechnical System Principles and Guidelines: Past and

Present. *The Journal of Applied Behavioral Science*, *31*(1), 91–105. https://doi.org/10.1177/0021886395311009

Friedli, T., Goetzfried, M., & Basu, P. (2010). Analysis of the implementation of total productive maintenance, total quality management, and just-in-time in pharmaceutical manufacturing. *Journal of Pharmaceutical Innovation*, *5*(4), 181–192. https://doi.org/10.1007/s12247-010-9095-x

Frohlich, M. T., & Dixon, J. R. (2001). A taxonomy of manufacturing strategies revisited. *Journal of Operations Management*, *19*(5), 541–558. https://doi.org/10.1016/S0272-6963(01)00063-8

Fullerton, R. R., Kennedy, F. A., & Widener, S. K. (2014). Lean manufacturing and firm performance: The incremental contribution of lean management accounting practices. *Journal of Operations Management*, *32*(7–8), 414–428. https://doi.org/10.1016/j.jom.2014.09.002

Fullerton, R. R., & McWatters, C. S. (2001). The production performance benefits from JIT implementation. *Journal of Operations Management*, *19*(1), 81–96. https://doi.org/10.1016/S0272-6963(00)00051-6

Fullerton, R. R., & McWatters, C. S. (2002). The role of performance measures and incentive systems in relation to the degree of JIT implementation. *Accounting, Organizations and Society*, *27*(8), 711–735. https://doi.org/10.1016/S0361-3682(02)00012-0

Fullerton, R. R., McWatters, C. S., & Fawson, C. (2003). An examination of the relationships between JIT and financial performance. *Journal of Operations Management*, *21*(4), 383–404. https://doi.org/10.1016/S0272-6963(03)00002-0

Fullerton, R. R., & Wempe, W. F. (2009). Lean manufacturing, non- financial performance measures, and financial performance. *International Journal of Operations & Production Management*, *29*(3), 214–240. https://doi.org/10.1108/01443570910938970

Furlan, A., Dal Pont, G., & Vinelli, A. (2011). On the complementarity between internal and external just-in-time bundles to build and sustain high performance manufacturing. *International Journal of Production Economics*, *133*(2), 489–495. https://doi.org/10.1016/j.ijpe.2010.07.043

Furlan, A., Vinelli, A., & Dal Pont, G. (2011). Complementarity and lean manufacturing bundles: an empirical analysis. *International Journal of Operations & Production Management*, *31*(8), 835–850. https://doi.org/10.1108/01443571111153067

Fynes, B., de Burca, S., & Marshall, D. (2004). Environmental uncertainty, supply chain relationship quality and performance. *Journal of Purchasing and Supply Management*, *10*(4–5), 179–190. https://doi.org/10.1016/j.pursup.2004.11.003

Fynes, B., de Burca, S., & Voss, C. (2005). Supply chain relationship quality, the competitive environment and performance. *International Journal of Production Research*, *43*(16), 3303–3320. https://doi.org/10.1080/00207540500095894

Gadenne, D., & Sharma, B. (2009). An investigation of the hard and soft quality management factors of Australian SMEs and their association with firm performance. *International Journal of Quality and Reliability Management*, *26*(9), 865–880. https://doi.org/10.1108/02656710910995064

Gao, S., & Low, S. P. (2014). Impact of Toyota Way Implementation on Performance of Large Chinese Construction Firms. *Journal of Professional Issues in Engineering Education and Practice*, *140*(3), 04013022. https://doi.org/10.1061/(ASCE)EI.1943-5541.0000195

Garza-Reyes, J. A. (2015). Lean and Green – A systematic review of the state of the art literature. *Journal of Cleaner Production*, *102*, 18–29. https://doi.org/10.1016/j.jclepro.2015.04.064

Garza-Reyes, J. A., Ates, E. M., & Kumar, V. (2015). Measuring lean readiness through the understanding of quality practices in the Turkish automotive suppliers industry. *International Journal of Productivity and Performance Management*, *64*(8), 1092–1112. https://doi.org/10.1108/IJPPM-09-2014-0136

Gaskin, J., Godfrey, S., & Vance, A. (2018). Successful System-use: It's Not Just Who You Are, But What You Do. *AIS Transactions on Human-Computer Interaction*, *10*(2), 57–81. https://doi.org/10.17705/1thci.00104

Gaur, S. S., Vasudevan, H., & Gaur, A. S. (2011). Market orientation and manufacturing performance of Indian SMEs: Moderating role of firm resources and environmental factors. *European Journal of Marketing*, *45*(7/8), 1172–1193. https://doi.org/10.1108/03090561111137660

Ghobakhloo, M., & Hong, T. S. (2014). IT investments and business performance improvement: the mediating role of lean manufacturing implementation. *International Journal of Production Research*, *52*(18), 5367–5384. https://doi.org/10.1080/00207543.2014.906761

Ghosh, M. (2013). Lean manufacturing performance in Indian manufacturing plants. *Journal of Manufacturing Technology Management*, *24*(1), 113–122. https://doi.org/10.1108/17410381311287517

Gibbons, P. M., Kennedy, C., Burgess, S. C., & Godfrey, P. (2012). The development of a lean resource mapping framework: Introducing an 8th waste. *International Journal of Lean Six Sigma*, *3*(1), 4–27. https://doi.org/10.1108/20401461211223704

Ginsberg, A., & Venkatraman, N. (1985). Contingency Perspectives of Organizational Strategy : A Critical Review of the Empirical Research. *Academy of Management Review*, *10*(3), 421–434. https://doi.org/10.2307/258125

Godinho Filho, M., Ganga, G. M. D., & Gunasekaran, A. (2016). Lean manufacturing in Brazilian small and medium enterprises: implementation and effect on performance. *International Journal of Production Research*, *54*(24), 7523–7545. https://doi.org/10.1080/00207543.2016.1201606

Gonzalez-Benito, J., & Dale, B. (2001). Supplier quality and reliability assurance

practices in the Spanish auto components industry : a study of implementation issues. *European Journal of Purchasing & Supply Management*, *7*(3), 187–196. https://doi.org/10.1016/S0969-7012(00)00030-7

Grant, C., & Osanloo, A. (2014). Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for Your "House." *Administrative Issues Journal: Education Practice and Research*, *4*(2), 12–26. https://doi.org/10.5929/2014.4.2.9

Green, K. W., & Inman, R. A. (2006). Does implementation of a JIT-with-customers strategy change an organization's structure? *Industrial Management & Data Systems*, *106*(8), 1077–1094. https://doi.org/10.1108/02635570610710764

Green, K. W., & Inman, R. A. (2007). The impact of JIT-II-selling on organizational performance. *Industrial Management & Data Systems*, *107*(7), 1018–1035. https://doi.org/10.1108/02635570710816720

Green, K. W., Inman, R. A., Birou, L. M., & Whitten, D. (2014). Total JIT (T-JIT) and its impact on supply chain competency and organizational performance. *International Journal of Production Economics*, *147*, 125–135. https://doi.org/10.1016/j.ijpe.2013.08.026

Greenley, G. E. (1995). Market Orientation and Company Performance: Empirical Evidence From UK Companies. *British Journal of Management*, *6*(1), 1–13. https://doi.org/http://dx.doi.org/10.1111/j.1467-8551.1995.tb00082.x

Hadid, W. (2014). *The relationship between lean service , activity-based costing and business strategy and their impact on performance*. *Doctoral dissertation*. Brunel University London.

Hadid, W., & Mansouri, S. A. (2014). The lean-performance relationship in services: A theoretical model. *International Journal of Operations & Production Management*, *34*(6), 750–785. https://doi.org/10.1108/IJOPM-02-2013-0080

Hadid, W., Mansouri, S. A., & Gallear, D. (2016). Is lean service promising? A socio-technical perspective. *International Journal of Operations & Production Management*, *36*(6), 618–642. https://doi.org/10.1108/01443571211274486

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014a). *Multivariate Data Analysis: Pearson New International Edition* (7th ed.). Pearson Education Limited.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014b). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks, CA: SAGE Publications.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014c). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business

research. *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hall, A. (2006). *Introduction to Lean Sustainable Quality Systems Design integrated leadership competencies from viewpoints of dynamic scientific inquiry learning and Toyota's lean system principles*. Lexington, KY: Arlie Hall, Ed.D.

Hallgren, M., & Olhager, J. (2009). Lean and agile manufacturing: external and internal drivers and performance outcomes. *International Journal of Operations & Production Management*, *29*(10), 976–999. https://doi.org/10.1108/01443570910993456

Hamzah, M. I. M., Juraime, F., & Mansor, A. N. (2016). Technology Leadership Practices and Curriculum Management. *Creative Education 7*, *7*(07), 922.

Haque, B., & Moore, M. J. (2004). Applying lean thinking to new product introduction. *Journal of Engineering Design*, *15*(1), 1–31. https://doi.org/10.1080/0954482031000150125

Hayes, R. H., & Pisano, G. (1994). Beyond World-Class: The New Manufacturing Strategy. *Harvard Business Review*, *72*, 77–87. https://doi.org/10.1016/S0267-3649(00)88914-1

Heizer, J., Render, B., & Munson, C. (2016). *Operations Management: Sustainability and Supply Chain Management* (12th ed.). Pearson Education.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling in International Marketing. *Advances in International Marketing*, *20*, 277–319. https://doi.org/10.1108/S1474-7979(2009)0000020014

Hertzog, M. A. (2008). Considerations in Determining Sample Size for Pilot Studies. *Research in Nursing & Health*, *31*(2), 180–191. https://doi.org/10.1002/nur.20247

Herzog, N. V., & Tonchia, S. (2014). An instrument for measuring the degree of lean implementation in manufacturing. *Strojniski Vestnik/Journal of Mechanical Engineering*, *60*(12), 797–803. https://doi.org/10.5545/sv-jme.2014.1873

Hibadullah, S. N., Habidin, N. F., Zamri, F. I. M., Fuzi, N. M., & Desa, A. F. N. C. (2014). Critical success factors of lean manufacturing practices for the Malaysian automotive manufacturers. *International Journal of Quality and Innovation*, *2*(3–4), 256–271. https://doi.org/10.1504/IJQI.2014.066382

Hill, R. (1998). What Sample Size Is " Enough " In Internet Survey Research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, *6*(3–4), 1–10.

Hines, P., Holweg, M., & Rich, N. (2004). Learning to evolve: A review of contemporary lean thinking. *International Journal of Operations & Production Management*, *24*(10), 994–1011. https://doi.org/10.1108/01443570410558049

Hines, P., & Taylor, D. (2000). *Going Lean - A Guide to Implementation*. Cardiff, UK:

Cardiff Business School, Lean Enterprise Research Centre. Retrieved from http://leancompetency.org/wp-content/uploads/2015/09/Going-Lean.pdf

Hofer, C., Eroglu, C., & Hofer, A. R. (2012). The effect of lean production on financial performance : The mediating role of inventory leanness. *International Journal of Production Economics*, *138*(2), 242–253. https://doi.org/10.1016/j.ijpe.2012.03.025

Hofer, C. W. (1975). Toward a Contingency Theory of Business Strategy. *Academy of Management Journal*, *18*(4), 784–810. https://doi.org/10.2307/255379

Hokoma, R. A., Khan, M. K., & Hussain, K. (2008). Investigation into the implementation stages of manufacturing and quality techniques and philosophies within the Libyan cement industry. *Journal of Manufacturing Technology Management*, *7*(19), 893–907. https://doi.org/10.1108/17410380810898804

Hokoma, R. A., Khan, M. K., & Hussain, K. (2010). The present status of quality and manufacturing management techniques and philosophies within the Libyan iron and steel industry. *The TQM Journal*, *22*(2), 209–221. https://doi.org/10.1108/S1871-3173(2013)0000007004

Holweg, M. (2007). The genealogy of lean production. *Journal of Operations Management*, *25*(2), 420–437. https://doi.org/10.1016/j.jom.2006.04.001

Hong, P., Yang, M. G. M., & Dobrzykowski, D. D. (2014). Strategic customer service orientation, lean manufacturing practices and performance outcomes: An empirical study. *Journal of Service Management*, *25*(5), 699–723.

Hopp, W. J., & Spearman, M. L. (2004). To Pull or Not to Pull: What Is the Question? *Manufacturing & Service Operations Management*, *6*(2), 133–148. https://doi.org/10.1287/msom.1030.0028

Howell, G. A. (1999). What Is Lean Construction-1999? *Proceedings Seventh Annual Conference of the International Group for Lean Construction*, *7*, 1–10. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.418.4301&rep=rep1&type=pdf#page=9

Hu, Q., Mason, R., Williams, S. J., & Found, P. (2015). Lean implementation within SMEs : A literature review. *Journal of Manufacturing Technology Management*, *26*(7), 980–1012.

Hum, S. H., & Ng, Y. T. (1995). A study on just-in-time practices in Singapore. *International Journal of Operations & Production Management*, *15*(6), 5–24. https://doi.org/10.1108/01443579510090309

Huson, M., & Nanda, D. (1995). The impact of just-in-time manufacturing on firm performance in the US. *Journal of Operations Management*, *12*(3–4), 297–310. https://doi.org/10.1016/0272-6963(95)00011-G

Imai, M. (1986). *Kaizen: The Key to Japan's Competitive Success*. *Becoming lean Inside stories of US manufacturers.*

Inman, R. A., Sale, R. S., Green, K. W., & Whitten, D. (2011). Agile manufacturing : Relation to JIT , operational performance and firm performance. *Journal of Operations Management*, *29*(4), 343–355. https://doi.org/10.1016/j.jom.2010.06.001

Isaac, S., & Michael, W. B. (1995). *Handbook in Research and Evaluation: A Collection of Principles, Methods, and Strategies Useful in the Planning, Design, and Evaluation of Studies in Education and the Behavioral Sciences* (3rd ed.). San Diego, CA: EdITS.

Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research. *Journal of Consumer Research*, *30*(2), 199–218. https://doi.org/10.1086/376806

Jasti, N. V. K., & Kodali, R. (2014). Validity and reliability of lean manufacturing frameworks: An empirical study in Indian manufacturing industries. *International Journal of Lean Six Sigma*, *5*(4), 1080–1122.

Jasti, N. V. K., & Kodali, R. (2015). Lean production: literature review and trends. *International Journal of Production Research*, *53*(3), 867–885. https://doi.org/10.1080/00207543.2014.937508

Jasti, N. V. K., & Kodali, R. (2016). An empirical study for implementation of lean principles in Indian manufacturing industry. *Benchmarking: An International Journal*, *23*(1), 183–207. https://doi.org/10.1108/BIJ-11-2013-0101

Jaworski, B. J., & Kohli, A. K. (1993). Market Orientation: Antecedents and Consequences. *Journal of Marketing*, *57*(3), 53–70. https://doi.org/10.2307/1251854

Jayaram, J., Das, A., & Nicolae, M. (2010). Looking beyond the obvious: Unraveling the Toyota production system. *International Journal of Production Economics*, *128*(1), 280–291. https://doi.org/10.1016/j.ijpe.2010.07.024

Jayaram, J., Droge, C., & Vickery, S. K. (1999). The impact of human resource management practices on manufacturing performance. *Journal of Operations Management*, *18*(1), 1–20. https://doi.org/10.1016/S0272-6963(99)00013-3

Jeyaraman, K., & Teo, L. K. (2010). A conceptual framework for critical success factors of lean Six Sigma: Implementation on the performance of electronic manufacturing service industry. *International Journal of Lean Six Sigma*, *1*(3), 191–215. https://doi.org/10.1108/20401461011075008

Johanson, G. A., & Brooks, G. P. (2010). Initial Scale Development: Sample Size for Pilot Studies. *Educational and Psychological Measurement*, *70*(3), 394–400. https://doi.org/10.1177/0013164409355692

Jones, D. T. (2007). Lean Global Network. Retrieved April 19, 2016, from http://leanglobal.org/what-is-lean/

Julious, S. A. (2005). Sample size of 12 per group rule of thumb for a pilot study.

Pharmaceutical Statistics, *4*(4), 287–291. https://doi.org/10.1002/pst.185

Kadipasaoglu, S. N., Peixoto, J. L., & Khumawala, B. M. (1999). Global manufacturing practices: an empirical evaluation. *Industrial Management & Data Systems*, *99*(3), 101–108. https://doi.org/10.1108/02635579910370652

Karim, A., & Arif Uz Zaman, K. (2013). A methodology for effective implementation of lean strategies and its performance evaluation in manufacturing organizations. *Business Process Management Journal*, *19*(1), 169–196. https://doi.org/10.1108/14637151311294912

Karlsson, C., & Ahlstrom, P. (1996). Assessing changes towards lean production. *International Journal of Operations & Production Management*, *16*(2), 24–41. https://doi.org/10.1108/01443579610109820

Karlsson, C., & Ahlstrom, P. (1997). A lean and global smaller firm? *International Journal of Operations & Production Management*, *17*(10), 940–952. https://doi.org/10.1108/01443579710176915

Keats, B. W., & Hitt, M. A. (1988). A Causal Model Of Linkages Among Environmental Dimensions, Macro Organizational Characteristics, And Performance. *Academy of Management Journal*, *31*(3), 570–598. https://doi.org/10.2307/256460

Keith, T. Z. (2015). *Multiple Regression and Beyond: An Introduction to Multiple Regression and Structural Equation Modeling* (2nd ed.). Routledge Ltd.

Ketokivi, M. A., & Schroeder, R. G. (2004). Perceptual measures of performance: Fact or fiction? *Journal of Operations Management*, *22*(3), 247–264. https://doi.org/10.1016/j.jom.2002.07.001

Khalili, A., Ismail, M. Y., Karim, A. N. M., & Daud, M. R. C. (2018). Soft total quality management and lean manufacturing initiatives: model development through structural equation modelling. *International Journal of Productivity and Quality Management*, *23*(1), 1–30. https://doi.org/10.1504/IJPQM.2018.088605

Khanchanapong, T., Prajogo, D., Sohal, A. S., Cooper, B. K., Yeung, A. C. L., & Cheng, T. C. E. (2014). The unique and complementary effects of manufacturing technologies and lean practices on manufacturing operational performance. *International Journal of Production Economics*, *153*, 191–203. https://doi.org/10.1016/j.ijpe.2014.02.021

Khusaini, N. S., Jaffar, A., & Noriah, Y. (2014). A Survey on Lean Manufacturing Practices in Malaysian Food and Beverages Industry. In *Applied Mechanics and Materials* (Vol. 564, pp. 632–637). Trans Tech Publications. https://doi.org/10.4028/www.scientific.net/AMM.564.632

Khusaini, N. S., Jaffar, A., & Yusoff, N. (2014). A Survey on Lean Manufacturing Tools Implementation in Malaysian Food and Beverages Industry Using Rasch Model. In *Advanced Materials Research* (Vol. 845, pp. 642–646). Trans Tech Publications. https://doi.org/10.4028/www.scientific.net/AMR.845.642

Kieser, M., & Wassmer, G. (1996). On the Use of the Upper Confidence Limit for the Variance from a Pilot Sample for Sample Size Determination. *Biometrical Journal*, *38*(8), 941–949. https://doi.org/10.1002/bimj.4710380806

Kirca, A. H., Jayachandran, S., & Bearden, W. O. (2005). Market Orientation: A Meta-Analytic Review and Assessment of Its Antecedents and Impact on Performance. *Journal of Marketing*, *69*(2), 24–41. https://doi.org/10.1509/jmkg.69.2.24.60761

Koh, S. C. L., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems*, *107*(1), 103–124. https://doi.org/http://dx.doi.org/10.1108/02635570710719089

Koh, S. C. L., & Gunasekaran, A. (2006). A knowledge management approach for managing uncertainty in manufacturing. *Industrial Management & Data Systems*, *106*(4), 439–459. https://doi.org/10.1108/02635570610661561

Kohli, A. K., & Jaworski, B. J. (1990). Market Orientation: The Construct, Research Propositions, and Managerial Implications. *Journal of Marketing*, *54*(2), 1–18. https://doi.org/10.2307/1251866

Kosuge, R. (2014). The Integration of Lean and Socio-technical Practices in Sweden. *Annals of Business Administrative Science*, *13*, 255–269.

Krafcik, J. F. (1988). Triumph of the lean production system. *Sloan Management Review*, *30*(1), 41. Retrieved from http://search.proquest.com/docview/224963951/abstract?accountid=10218

Krejcie, R. V, & Morgan, D. W. (1970). Determining sample size for research activities. *Education and Psychological Measurement*, *30*, 607–610. https://doi.org/10.1177/001316447003000308

Krosnick, J. A., & Presser, S. (2010). Question and Questionnaire Design. In P. V Marsden & J. D. Wright (Eds.), *Handbook of Survey Research* (2nd ed., p. 903). Emerald Group Publishing. https://doi.org/10.1111/j.1432-1033.1976.tb10115.x

Kull, T. J., Yan, T., Liu, Z., & Wacker, J. G. (2014). The moderation of lean manufacturing effectiveness by dimensions of national culture: Testing practice-culture congruence hypotheses. *International Journal of Production Economics*, *153*, 1–12. https://doi.org/10.1016/j.ijpe.2014.03.015

Kumar, M., Antony, J., & Douglas, A. (2009). Does size matter for Six Sigma implementation?Findings from the survey in UK SMEs. *TQM Journal*, *21*(6), 623–635. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=70439485&site=ehost-live&scope=site

Kumar, N., Kumar, S., Haleem, A., & Gahlot, P. (2013). Implementing lean manufacturing system : ISM approach. *Journal of Industrial Engineering and Management*, *6*(4), 996–1012. https://doi.org/10.3926/jiem.508

Kumar, R. (2014). *Research Methodology: A Step-by-Step Guide for Beginners* (4th

ed.). SAGE Publications.

Laosirihongthong, T., & Dangayach, G. S. (2005). A comparative study of implementation of manufacturing strategies in Thai and Indian automotive manufacturing companies. *Journal of Manufacturing Systems*, *24*(2), 131–143. https://doi.org/10.1016/S0278-6125(05)80013-5

Lawrence, J. J., & Hottenstein, M. P. (1995). The relationship between JIT manufacturing and performance in Mexican plants affiliated with U.S. companies. *Journal of Operations Management*, *13*(1), 3–18. https://doi.org/10.1016/0272-6963(95)00018-N

Lawrence, P. R., & Lorsch, J. W. (1967a). Differentiation and Integration in Complex Organizations. *Administrative Science Quarterly*, *12*(1), 1–47. https://doi.org/10.2307/2391211

Lawrence, P. R., & Lorsch, J. W. (1967b). *Organization and Environment: Managing Differentiation and Integration*. *Organization and Environment*. Boston, MA: Harvard Businessl Press.

Lean Enterprise Institute. (2016). Breakthrough Moments in Lean. Retrieved April 19, 2016, from http://www.lean.org/WhatsLean/Timeline.cfm

Li, M., & Simerly, R. L. (1998). The moderating effect of environmental dynamism on the ownership and performance relationship. *Strategic Management Journal*, *19*(2), 169–179. https://doi.org/10.1002/(SICI)1097-0266(199802)19:2<169::AID-SMJ939>3.0.CO;2-2

Li, S., Rao, S. S., Ragu Nathan, T. S., & Ragu Nathan, B. (2005). Development and validation of a measurement instrument for studying supply chain management practices. *Journal of Operations Management*, *23*(6), 618–641. https://doi.org/10.1016/j.jom.2005.01.002

Liao, S. H., Chang, W. J., Wu, C. C., & Katrichis, J. M. (2011). A survey of market orientation research (1995-2008). *Industrial Marketing Management*, *40*(2), 301–310. https://doi.org/10.1016/j.indmarman.2010.09.003

Liker, J. (1997). *Becoming Lean: Inside Stories of U.S. Manufacturers*. New York, NY: Productivity Press.

Liker, J. (2004). *The Toyota Way : 14 Management Principles from the World's Greatest Manufacturer*. New York, NY: McGraw Hill.

Liker, J., & Morgan, J. M. (2006). The Toyota Way in Services: The Case of Lean Product Development. *Academy of Management Perspectives*, *20*(2), 5–20. https://doi.org/10.5465/AMP.2006.20591002

Liker, J., & Rother, M. (2011). Why Lean Programs Fail. *Lean Enterprise Institute*. Retrieved from https://www.lean.org/Search/Documents/352.pdf

Liker, J., & Wu, Y. C. (2000). Japanese Automakers , US Suppliers and Supply-Chain Superiority. *Sloan Management Review*, *42*(1), 81–93.

Losonci, D., & Demeter, K. (2013). Lean production and business performance: international empirical results. *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*, *23*(3), 218–233. https://doi.org/10.1108/10595421311319816

Lowry, P. B., & Gaskin, J. (2014). Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: When to choose it and how to use it. *IEEE Transactions on Professional Communication*, *57*(2), 123–146. https://doi.org/10.1109/TPC.2014.2312452

Lucato, W. C., Calarge, F. A., Junior, M. L., & Calado, R. D. (2014). Performance evaluation of lean manufacturing implementation in Brazil. *International Journal of Productivity and Performance Management*, *63*(5), 529–549. https://doi.org/10.1108/IJPPM-04-2013-0085

MacHuca, J. A. D., Jimenez, C. H. O., Garrido-Vega, P., & De Los Rios, J. L. P. D. (2011). Do technology and manufacturing strategy links enhance operational performance? Empirical research in the auto supplier sector. *International Journal of Production Economics*, *133*(2), 541–550. https://doi.org/10.1016/j.ijpe.2010.12.010

MacKelprang, A. W., & Nair, A. (2010). Relationship between just-in-time manufacturing practices and performance: A meta-analytic investigation. *Journal of Operations Management*, *28*(4), 283–302. https://doi.org/10.1016/j.jom.2009.10.002

Mahapatra, S. K., Das, A., & Narasimhan, R. (2012). A contingent theory of supplier management initiatives: Effects of competitive intensity and product life cycle. *Journal of Operations Management*, *30*(5), 406–422. https://doi.org/10.1016/j.jom.2012.03.004

Malaysia Productivity Corporation. (2012). *MPC Annual Report 2012*. Malaysia. Retrieved from http://www.mpc.gov.my/home/?cont=c2&item=3&sstr_lang=en&t=3

Malaysia Productivity Report. (2016). *MPC Annual Report 2016*. Selangor, Malaysia. Retrieved from http://www.mpc.gov.my/

Mamat, R. C., Md Deros, B., Rahman, M. N. A., Omar, M. K., & Abdullah, S. (2015). Soft lean practices for successful lean production system implementation in malaysia automotive smes: A proposed framework. *Jurnal Teknologi*, *77*(27), 141–150. https://doi.org/10.11113/jt.v77.6910

Manzouri, M., Ab-Rahman, M. N., Zain, C. R. C. M., & Jamsari, E. A. (2014). Increasing production and eliminating waste through lean tools and techniques for Halal food companies. *Sustainability*, *6*(12), 9179–9204. https://doi.org/10.3390/su6129179

Marin-Garcia, J. A., & Bonavia, T. (2015). Relationship between employee involvement and lean manufacturing and its effect on performance in a rigid continuous process industry. *International Journal of Production Research*, *53*(11), 3260–3275. https://doi.org/10.1080/00207543.2014.975852

Marksberry, P. (2011). An investigation of Toyota's social-technical systems in production leveling. *Journal of Manufacturing Technology Management*, *22*(5), 604–620. https://doi.org/10.1108/17410381111134464

Marksberry, P. (2012). Investigating "The Way" for Toyota suppliers: A quantitative outlook on Toyota's replicating efforts for supplier development. *Benchmarking: An International Journal*, *19*(2), 277–298. https://doi.org/10.1108/14635771211224572

Marodin, G. A., Frank, A. G., Tortorella, G. L., & Fetterman, D. C. (2017). Lean production and operational performance in the Brazilian automotive supply chain. *Total Quality Management & Business Excellence*, *3363*, 1–16. https://doi.org/10.1080/14783363.2017.1308221

Martinez-Jurado, P. J., Moyano-Fuentes, J., & Jerez-Gomez, P. (2014). Human resource management in Lean Production adoption and implementation processes: Success factors in the aeronautics industry. *BRQ Business Research Quarterly*, *17*(1), 47–68. https://doi.org/10.1016/j.cede.2013.06.004

Masa'deh, R. (2016). The Role of Emotional Intelligence in Enhancing Organizational Effectiveness: The Case of Information Technology Managers in Jordan. *International Journal of Communications, Network and System Sciences*, *9*(06), 234. https://doi.org/10.4236/ijcns.2016.96022

Matson, J. E., & Matson, J. O. (2007). Just-in-time implementation issues among automotive suppliers in the southern USA. *Supply Chain Management: An International Journal*, *12*(6), 432–443. https://doi.org/10.1108/13598540710826362

Matsui, Y. (2007). An empirical analysis of just-in-time production in Japanese manufacturing companies. *International Journal of Production Economics*, *108*(1–2), 153–164. https://doi.org/10.1016/j.ijpe.2006.12.035

Mazanai, M. (2012). Impact of just-in-time (JIT) inventory system on efficiency, quality and flexibility among manufacturing sector, small and medium enterprise (SMEs) in South Africa. *African Journal of Business Management*, *6*(17), 5786–5791. https://doi.org/10.5897/AJBM12.148

McKone, K. E., Schroeder, R. G., & Cua, K. O. (2001). The impact of total productive maintenance practices on manufacturing performance. *Journal of Operations Management*, *19*(1), 39–58. https://doi.org/10.1016/S0272-6963(00)00030-9

McLachlin, R. (1997). Management initiatives and just-in-time manufacturing. *Journal of Operations Management*, *15*(4), 271–292. https://doi.org/10.1016/S0272-6963(97)00010-7

Melton, T. (2005). The benefits of lean manufacturing: what lean thinking has to offer to the process industries. *Chemical Engineering Research and Design*, *83*(A6), 662–673. https://doi.org/10.1205/cherd.04351

Meredith, J., Raturi, A., Amoako Gyampah, K., & Kaplan, B. (1989). Alternative research paradigms in operations. *Journal of Operations Management*, *8*(4), 297–

326. https://doi.org/http://dx.doi.org/10.1016/0272-6963(89)90033-8

Milgrom, P., & Roberts, J. (1995). Complementarities and fit strategy, structure, and organizational change in manufacturing. *Journal of Accounting and Economics*, *19*(2–3), 179–208. https://doi.org/10.1016/0165-4101(94)00382-F

Miller, D. (1987). The structural and environmental correlates of business strategy. *Strategic Management Journal*, *8*(1), 55–76. https://doi.org/10.1002/smj.4250080106

Miller, D., & Friesen, P. H. (1983). Strategy-Making and Environment: The Third Link. *Strategic Management Journal*, *4*(3), 221–235. https://doi.org/10.1002/smj.4250040304

Ministry of Finance Malaysia. (2014). *Economic Report 2014/2015*. Retrieved from http://www.treasury.gov.my/index.php?option=com_content&view=article&id=4296:economic-report-2014-2015&catid=262&Itemid=2478&lang=en

MIT. (2000). Transitioning to a Lean Enterprise: A Guide for Leaders. Retrieved February 27, 2016, from https://dspace.mit.edu/handle/1721.1/81895

Moayed, F. A., & Shell, R. L. (2009). Comparison and evaluation of maintenance operations in lean versus non-lean production systems. *Journal of Quality in Maintenance Engineering*, *15*(3), 285–296. https://doi.org/10.1108/13552510910983224

Mohamad, M. R. (2013). Determinants of small and medium enterprises performance in the Malaysian auto-parts industry. *African Journal of Business Management*, *5*(20), 8235–8241. https://doi.org/10.5897/AJBM11.889

Monden, Y. (2012). *Toyota Production System: An Integrated Approach to Just-In-Time* (4th ed.). London: CRC Press.

Moyano-Fuentes, J., Sacristan-Diaz, M., & Martinez-Jurado, P. J. (2012). Cooperation in the supply chain and lean production adoption: Evidence from the Spanish automotive industry. *International Journal of Production and Operation Management*, *32*(9), 1075–1096. https://doi.org/10.1108/01443571211265701

Moyano-Fuentes, J., & Sacristan Diaz, M. (2012). Learning on lean: a review of thinking and research. *International Journal of Operations & Production Management*, *32*(5), 551–582. https://doi.org/10.1108/01443571211226498

Munoz Moreno, R., Del Carpio, X. V., Testaverde, M., Moroz, H. E., Carmen, L., Smith, R. L., … Yoong, P. S. (2015). *Malaysia Economic Monitor: Immigrant Labour* (No. 102131). Washington, DC. Retrieved from http://documents.worldbank.org/curated/en/753511468197095162/Malaysia-Economic-monitor-immigrant-labor

Muslimen, R., Yusof, S. M., & Abidin, A. S. Z. (2013). A Case Study of Lean Manufacturing Implementation Approach in Malaysian Automotive Components Manufacturer. In *Electrical Engineering and Intelligent Systems* (Vol. 130, pp. 327–335). Springer, New York, NY. https://doi.org/10.1007/978-1-4614-2317-1

Nair, A. (2006). Meta-analysis of the relationship between quality management practices and firm performance—implications for quality management theory development. *Journal of Operations Management*, *24*(6), 948–975. https://doi.org/10.1016/j.jom.2005.11.005

Nakamura, M., Sakakibara, S., & Schroeder, R. G. (1998). Adoption of Just-in-Time Manufacturing Methods at US- and Japanese-Owned Plants: Some Empirical Evidence. *IEEE Transactions on Engineering Management*, *45*(3), 230–240. https://doi.org/10.1109/17.704245

Narasimhan, R., Swink, M., & Kim, S. W. (2006). Disentangling leanness and agility: An empirical investigation. *Journal of Operations Management*, *24*(5), 440–457. https://doi.org/10.1016/j.jom.2005.11.011

Nawanir, G., Lim, K. T., & Othman, S. N. (2016). Lean manufacturing practices in Indonesian manufacturing firms: are there business performance effects? *International Journal of Lean Six Sigma*, *7*(2), 149–170. https://doi.org/http://dx.doi.org/10.1108/IJLSS-06-2014-0013

Nawanir, G., Teong, L. K., & Othman, S. N. (2013). Impact of lean practices on operations performance and business performance: Some evidence from Indonesian manufacturing companies. *Journal of Manufacturing Technology Management*, *24*(7), 1019–1050. https://doi.org/10.1108/JMTM-03-2012-0027

Naylor, B. J., Naim, M. M., & Berry, D. (1999). Leagility: Integrating the lean and agile manufacturing paradigms in the total supply chain. *International Journal of Production Economics*, *62*(1–2), 107–118. https://doi.org/10.1016/S0925-5273(98)00223-0

Negrao, L. L. L., Godinho Filho, M., & Marodin, G. A. (2017). Lean practices and their effect on performance: a literature review. *Production Planning & Control*, *28*(1), 33–56. https://doi.org/10.1080/09537287.2016.1231853

Netland, T. H. (2016). Critical success factors for implementing lean production: the effect of contingencies. *International Journal of Production Research*, *54*(8), 1–16. https://doi.org/10.1080/00207543.2015.1096976

Nickell, S. J. (1996). Competition and Corporate Performance. *Journal of Political Economy*, *104*(4), 724–746. https://doi.org/10.1086/262040

Niepce, W., & Molleman, E. (1996). Characteristics of work organization in lean production and sociotechnical systems: A case study. *International Journal of Operations & Production Management*, *16*(2), 77–90.

Niepce, W., & Molleman, E. (1998). Work Design Issues in Lean Production from a Sociotechnical Systems Perspective: Neo-Taylorism or the Next Step in Sociotechnical Design? *Human Relations*, *51*(3), 259–287. https://doi.org/10.1177/001872679805100304

Nordin, N., Deros, B. M., Wahab, D. A., & Rahman, M. N. A. (2012). A framework for organisational change management in lean manufacturing implementation. *International Journal of Services and Operations Management*, *12*(1), 101.

https://doi.org/10.1504/IJSOM.2012.046676

Nordin, N., Md Deros, B., & Abdul Wahab, D. (2010). A Survey on Lean Manufacturing Implementation in Malaysian Automotive Industry. *International Journal of Innovation, Management and Technology*, *1*(4), 374–380.

Nordin, N., Md Deros, B., & Abdul Wahab, D. (2011). Lean Manufacturing Implementation in Malaysian Automotive Industry : An Exploratory Study. *Operations and Supply Chain Management*, *4*(1), 21–30.

Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). New York: McGraw-Hil.

Ohno, T. (1982). How the Toyota Production System was Created. *Japanese Economy Studies*, *10*(4), 83–101. https://doi.org/10.2753/JES1097-203X100483

Ohno, T. (1988). *Toyota Production System: Beyond Large-Scale Production*. Portland, OR: Productivity Press.

Oral, E. L., Mistikoglu, G., & Erdis, E. (2003). JIT in developing countries-a case study of the Turkish prefabrication sector. *Building and Environment*, *38*(6), 853–860. https://doi.org/10.1016/S0360-1323(03)00021-0

Paez, O., Dewees, J., Genaidy, A., Tuncel, S., Karwowski, W., & Zurada, J. (2004). The lean manufacturing enterprise: An emerging sociotechnological system integration. *Human Factors and Ergonomics In Manufacturing*, *14*(3), 285–306. https://doi.org/10.1002/hfm.10067

Pallant, J. (2016). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS* (6th ed.). New South Wales: Allen & Unwin. Retrieved from https://books.google.com.my/books?id=Y9NxCwAAQBAJ

Panizzolo, R. (1998). Applying the lessons learned from 27 lean manufacturers. *International Journal of Production Economics*, *55*(3), 223–240. https://doi.org/10.1016/S0925-5273(98)00066-8

Panizzolo, R., Garengo, P., Sharma, M. K., & Gore, A. (2012). Lean manufacturing in developing countries: evidence from Indian SMEs. *Production Planning & Control*, *23*(10–11), 769–788. https://doi.org/10.1080/09537287.2011.642155

Panwar, A., Jain, R., & Rathore, A. P. S. (2015). Lean implementation in Indian process industries - some empirical evidence. *Journal of Manufacturing Technology Management*, *26*(1), 131–160. https://doi.org/10.1108/JMTM-05-2013-0049

Panwar, A., Jain, R., Rathore, A. P. S., Nepal, B., & Lyons, A. C. (2018). The impact of lean practices on operational performance–an empirical investigation of Indian process industries. *Production Planning and Control*, *29*(2), 158–169. https://doi.org/10.1080/09537287.2017.1397788

Papadopoulou, T. C., & Ozbayrak, M. (2005). Leanness: experiences from the journey to date. *Journal of Manufacturing Technology Management*, *16*(7), 784–807.

Pasmore, W., Francis, C., Haldeman, J., & Shani, A. (1982). Sociotechnical Systems: A North American Reflection on Empirical Studies of the Seventies. *Human Relations*, *35*(12), 1179–1204. https://doi.org/10.1177/001872678203501207

Pavnaskar, S. J., Gershenson, J. K., & Jambekar, A. B. (2003). Classification scheme for lean manufacturing tools. *International Journal of Production Research*, *41*(13), 3075–3090. https://doi.org/10.1080/0020754021000049817

Peng, D. X., & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, *30*(6), 467–480. https://doi.org/10.1016/j.jom.2012.06.002

Pereira, L., & Tortorella, G. (2018a). A Literature Review on Lean Manufacturing in Small Manufacturing Companies. In J. Paulo Davim (Ed.), *Progress in Lean Manufacturing* (pp. 69–89). Aveiro, Portugal: Springer, Cham. https://doi.org/10.1007/978-3-319-73648-8_3

Pereira, L., & Tortorella, G. (2018b). Identification of The Relationships Between Critical Success Factors, Barriers and Practices for Lean Implementation in A Small Company. *Brazilian Journal of Operations & Production Management*, *15*(2), 232–246. https://doi.org/10.14488/BJOPM.2018.v15.n2.a6

Pettersen, J. (2009). Defining lean production: some conceptual and practical issues. *The TQM Journal*, *21*(2), 127–142. https://doi.org/10.1108/17542730910938137

Pfeffer, J., & Salancik, G. R. (1978). *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper & Row.

Pfeffer, J., & Salancik, G. R. (2003). *The External Control of Organizations: A Resource Dependence Perspective* (reprint). Stanford, California: Stanford University Press.

Piercy, N. C., & Rich, N. (2004). Strategic marketing and operations relationships: The case of the lean enterprise. *Journal of Strategic Marketing*, *12*(3), 145–161. https://doi.org/10.1080/0965254042000262896

Prajogo, D., Chowdhury, M., Yeung, A. C. L., & Cheng, T. C. E. (2012). The relationship between supplier management and firm'sa operational performance: A multi-dimensional perspective. *International Journal of Production Economics*, *136*(1), 123–130. https://doi.org/10.1016/j.ijpe.2011.09.022

Psomas, E., Antony, J., & Bouranta, N. (2018). Assessing Lean adoption in food SMEs: Evidence from Greece. *International Journal of Quality & Reliability Management*, *35*(1), 64–81. https://doi.org/10.1108/IJQRM-05-2016-0061

Pullin, J. (2002). In pursuit of excellence. *Professional Engineering*, *15*(13), 38.

Puvanasvaran, P., Tian, R. K. S., Suresh, V., & Muhamad, M. R. (2012). Lean principles adoption in environmental management system (EMS): A survey on ISO 14001 certified companies in Malaysia. *Journal of Industrial Engineering and Management*, *5*(2), 406–430. https://doi.org/10.3926/jiem.486

Rahman, S., & Bullock, P. (2005). Soft TQM, hard TQM, and organisational performance relationships: An empirical investigation. *Omega*, *33*(1), 73–83. https://doi.org/10.1016/j.omega.2004.03.008

Rahman, S., Laosirihongthong, T., & Sohal, A. S. (2010). Impact of lean strategy on operational performance: a study of Thai manufacturing companies. *Journal of Manufacturing Technology Management*, *21*(7), 839–852. https://doi.org/10.1108/17410381011077946

Raju, P. S., Lonial, S. C., & Crum, M. D. (2011). Market orientation in the context of SMEs: A conceptual framework. *Journal of Business Research*, *64*(12), 1320–1326. https://doi.org/10.1016/j.jbusres.2010.12.002

Randhawa, J. S., & Ahuja, I. S. (2017). Structural equation modeling for validating impact of 5S implementation on business excellence of manufacturing organizations. *International Journal of Quality & Reliability Management*, *34*(9), 1592–1615. https://doi.org/http://dx.doi.org/10.1108/MRR-09-2015-0216

Robbins, S. P., DeCenzo, D. A., & Coulter, M. A. (2013). *Fundamentals of Management: Essential Concepts and Applications* (8th ed.). New Jersey: Pearson Education.

Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). Criteria for Scale Selection and Evaluation. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of Personality and Social Psychological Attitudes* (pp. 1–16). San Diego, CA: Academic Press. https://doi.org/10.1016/B978-0-12-590241-0.50005-8

Rose, A. N. M., Deros, B. M., & Rahman, M. N. A. (2013a). A Study On Lean Manufacturing Implementation in Malaysian Automotive Component Industry. *International Journal of Automotive and Mechanical Engineering*, *8*, 1467–1476. https://doi.org/10.15282/ijame.8.2013.33.0121

Rose, A. N. M., Deros, B. M., & Rahman, M. N. A. (2013b). Lean Manufacturing Perceptions and Actual Practice Among Malaysian SME's in Automotive Industry. *International Journal of Automotive and Mechanical Engineering*, *7*, 820–829.

Rose, A. N. M., Deros, B. M., & Rahman, M. N. A. (2013c). Lean Manufacturing Practices Implementation in Malaysian's SME Automotive Component Industry. In *Applied Mechanics and Materials* (Vol. 315, pp. 686–690). https://doi.org/10.4028/www.scientific.net/AMM.315.686

Rose, A. N. M., Deros, B. M., Rahman, M. N. A., & Nordin, N. (2011). Lean manufacturing best practices in SMEs. In *International Conference on Industrial Engineering and Operation Management* (Vol. 1, pp. 872–877).

Rose, G. M., & Shoham, A. (2002). Export performance and market orientation: Establishing an empirical link. *Journal of Business Research*, *55*(3), 217–225. https://doi.org/10.1016/S0148-2963(00)00139-9

Rosenzweig, E. D., Roth, A. V, & Dean, J. W. (2003). The influence of an integration

strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturers. *Journal of Operations Management*, *21*(4), 437–456. https://doi.org/10.1016/S0272-6963(03)00037-8

Rothstein, J. S. (2004). Creating lean industrial relations: general motors in Silao, Mexico. *Competition & Change*, *8*(3), 203–221. https://doi.org/10.1080/1024529042000301935

Rungtusanatham, J. M., Choi, T. Y., Hollingworth, D. G., Wu, Z., & Forza, C. (2003). Survey research in operations management: Historical analyses. *Journal of Operations Management*, *21*(4), 475–488. https://doi.org/10.1016/S0272-6963(03)00020-2

Rymaszewska, A. D. (2014). The challenges of lean manufacturing implementation in SMEs. *Benchmarking: An International Journal*, *21*(6), 987–1002. https://doi.org/10.1108/BIJ-10-2012-0065

Sahoo, S., & Yadav, S. (2018). Lean implementation in small and medium-sized enterprises: An empirical study of Indian Manufacturing firms. *Benchmarking: An International Journal*, *25*(4), 1121–1147. https://doi.org/10.1108/BIJ-10-2015-0093

Sahwan, M. A., Rahman, M. N. A., & Deros, B. M. (2014). Case Studies on the Implementation of Lean Manufacturing in the Automotive Malaysian Companies. In *Applied Mechanics and Materials* (Vol. 465–466, pp. 1180–1184). Trans Tech Publications. https://doi.org/10.4028/www.scientific.net/AMM.465-466.1180

Sakakibara, S., Flynn, B. B., & Schroeder, R. G. (1993). A Framework and Measurement Instrument for Just in Time Manufacturing. *Production and …*, *2*(3), 177–194. https://doi.org/10.1111/j.1937-5956.1993.tb00097.x

Sakakibara, S., Flynn, B. B., Schroeder, R. G., & Morris, W. T. (1997). The Impact of Just-in-Time Manufacturing and Its Infrastructure on Manufacturing Performance. *Management Science*, *43*(9), 1246–1257. https://doi.org/10.1287/mnsc.43.9.1246

Salimi, M., Hadjali, H. R., & Sorooshian, S. (2012). A Lean Production Framework for Malaysian Automotive and Heavy Machinery Industry. *Journal of Applied Sciences*, *12*(13), 1402–1407. https://doi.org/10.3923/jas.2012.1402.1407

Samson, D., & Terziovski, M. (1999). The relationship between total quality management practices and operational performance. *Journal of Operations Management*, *17*(4), 393–409. https://doi.org/10.1016/S0272-6963(98)00046-1

Sanchez, A. M., & Perez, M. P. (2001). Lean indicators and manufacturing strategies. *International Journal of Operations & Production Management*, *21*(11), 1433–1452. https://doi.org/10.1108/01443570110407436

Sanchez, P. M., Rincon Ballesteros, N., & Fuentes Olaya, D. (2015). Impact of 5S on Productivity, Quality, Organizational Climate and IS at Tecniaguas S.A.S. In P. Cortes, E. Maeso-Gonzalez, & E. Escudero-Santana (Eds.), *Enhancing Synergies*

in a Collaborative Environment. Lecture Notes in Management and Industrial Engineering (pp. 247–255). Springer, Cham. https://doi.org/org/10.1007/978-3-319-14078-0_28

Satolo, E. G., Leite, C., Calado, R. D., Goes, G. A., & Salgado, D. D. (2018). Ranking lean tools for world class reach through grey relational analysis. *Grey Systems: Theory and Application*. https://doi.org/10.1108/GS-06-2018-0031

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (7th ed.). London: Pearson Education Limited.

Schoonhoven, C. B. (1981). Problems with contingency theory: testing assumptions hidden within the language of "contingency theory." *Administrative Science Quarterly*, *26*(3), 349–377. https://doi.org/10.2307/2392512

Segars, A. H. (1997). Assessing the unidimensionality of measurement: A paradigm and illustration within the context of information systems research. *Omega*, *25*(1), 107–121. https://doi.org/10.1016/S0305-0483(96)00051-5

Sekaran, U., & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach* (7th ed.). West Sussex, UK: Wiley.

Seth, D., & Gupta, V. (2005). Application of value stream mapping for lean operations and cycle time reduction: an Indian case study. *Production Planning & Control*, *16*(1), 44–59. https://doi.org/10.1080/09537280512331325281

Shah, R., & Goldstein, S. M. (2006). Use of structural equation modeling in operations management research: Looking back and forward. *Journal of Operations Management*, *24*(2), 148–169. https://doi.org/10.1016/j.jom.2005.05.001

Shah, R., & Ward, P. T. (2003). Lean manufacturing : context , practice bundles , and performance. *Journal of Operations Management*, *21*(2), 129–149. https://doi.org/10.1016/S0272-6963(02)00108-0

Shah, R., & Ward, P. T. (2007). Defining and developing measures of lean production. *Journal of Operations Management*, *25*(4), 785–805. https://doi.org/10.1016/j.jom.2007.01.019

Shah, S. M. A., El-Gohary, H., & Hussain, J. G. (2015). An Investigation of Market Orientation (MO) and Tourism Small and Medium-Sized Enterprises' (SMEs) Performance in Developing Countries: A Review of the Literature. *Journal of Travel & Tourism Marketing*, *32*(8), 990–1022. https://doi.org/10.1080/10548408.2014.957372

Sharfman, M. P., & Dean, J. W. (1991). Conceptualizing and Measuring the Organizational Environment: A Multidimensional Approach. *Journal of Management*, *17*(4), 681–700. https://doi.org/10.1177/014920639101700403

Sharma, V., Dixit, A. R., & Qadri, M. A. (2015). Impact of lean practices on performance measures in context to Indian machine tool industry. *Journal of Manufacturing Technology Management*, *26*(8), 1218–1242. https://doi.org/10.1108/JMTM-11-2014-0118

Shrafat, F. D., & Ismail, M. (2018). Structural equation modeling of lean manufacturing practices in a developing country context. *Journal of Manufacturing Technology Management*. https://doi.org/10.1108/JMTM-08-2017-0159

Simpson, D. F., & Power, D. J. (2005). Use the supply relationship to develop lean and green suppliers. *Supply Chain Management: An International Journal*, *10*(1), 60–68. https://doi.org/10.1108/13598540510578388

Singh, B., Garg, S. K., Sharma, S. K., & Grewal, C. (2010). Lean implementation and its benefits to production industry. *International Journal of Lean Six Sigma*, *1*(2), 157–168. https://doi.org/10.1108/20401461011049520

Singh, T. P., & Chauhan, G. (2013). Significant parameters of labour flexibility contributing to lean manufacturing. *Global Journal of Flexible Systems Management*, *14*(2), 93–105. https://doi.org/10.1007/s40171-013-0033-x

Sisson, J., & Elshennawy, A. (2015). Achieving success with Lean: An analysis of key factors in Lean transformation at Toyota and beyond. *International Journal of Lean Six Sigma*, *6*(3), 263–280. https://doi.org/10.1108/IJLSS-07-2014-0024

Slack, N., Brandon-Jones, A., & Johnston, R. (2016). *Operations Management* (8th ed.). Edinburgh, UK: Pearson Education Limited.

Slater, S. F., & Narver, J. C. (1994). Does Competitive Environment Moderate the Market Orientation-Performance Relationship? *The Journal of Marketing*, *58*(January), 46–55. https://doi.org/10.2307/1252250

SME Corp. Malaysia. (2015). Guideline for New Sme Definition. Retrieved June 1, 2015, from http://www.smecorp.gov.my/vn2/sites/default/files/Guideline_for_New_SME_Definition_7Jan2014.pdf

SME Corp. Malaysia. (2016). Free Trade Agreements (FTAs). Retrieved October 21, 2016, from http://www.smecorp.gov.my/index.php/en/initiatives/2015-12-21-10-24-36/free-trade-argreement-ftas

SME Corporation Malaysia. (2015). *SME Annual Report 2014/15*. Malaysia. Retrieved from http://www.smecorp.gov.my/vn2/node/1856

SME Corporation Malaysia. (2016). *SME Annual Report 2015/16*. Malaysia. Retrieved from http://www.smecorp.gov.my/index.php/en/slides/1714-sme-annual-report-2015-16

SME Corporation Malaysia. (2017). *SME Annual Report 2016/2017*. Malaysia. Retrieved from http://www.smecorp.gov.my/images/SMEAR/5_Chapter2.pdf

SME Master Plan 2012-2020. (2012). *SME Master Plan 2012-2020*. Retrieved from http://www.smecorp.gov.my/vn2/node/190

Soriano-Meier, H., & Forrester, P. L. L. (2002). A model for evaluating the degree of leanness of manufacturing firms. *Integrated Manufacturing Systems*, *13*(2), 104–

109. https://doi.org/10.1108/09576060210415437

Stentoft Arlbjorn, J., & Vagn Freytag, P. (2013). Evidence of lean: A review of international peer-reviewed journal articles. *European Business Review*, *25*(2), 174–205. https://doi.org/10.1108/09555341311302675

Stentoft Arlbjorn, J., Vagn Freytag, P., & de Haas, H. (2011). Service supply chain management: A survey of lean application in the municipal sector. *International Journal of Physical Distribution & Logistics Management*, *41*(3), 277–295. https://doi.org/10.1108/09600031111123796

Sternberg, H., Stefansson, G., Westernberg, E., Boije af Genna, R., Allenstrom, E., & Linger Nauska, M. (2013). Applying a lean approach to identify waste in motor carrier operations. *International Journal of Productivity and Performance Management*, *62*(1), 47–65. https://doi.org/10.1108/17410401311285291

Stevenson, W. J. (2015). *Operations Management* (12th ed.). New York: McGraw-Hill Education.

Stone, K. B. (2012a). Four decades of lean: a systematic literature review. *International Journal of Lean Six Sigma*, *3*(2), 112–132. https://doi.org/10.1108/20401461211243702

Stone, K. B. (2012b). Lean Transformation: Organizational Performance Factors that Influence Firms' Leanness. *Journal of Enterprise Transformation*, *2*(4), 229–249. https://doi.org/10.1080/19488289.2012.664611

Storch, R. L., & Lim, S. (1999). Improving flow to achieve lean manufacturing in shipbuilding. *Production Planning & Control*, *10*(2), 127–137. https://doi.org/10.1080/095372899233280

Swink, M., Narasimhan, R., & Kim, S. W. (2005). Manufacturing Practices and Strategy Integration: Effects on Cost Efficiency, Flexibility, and Market-Based Performance. *Decision Sciences*, *36*(3), 427–457. https://doi.org/10.1111/j.1540-5414.2005.00079.x

Taj, S. (2008). Lean manufacturing performance in China: assessment of 65 manufacturing plants. *Journal of Manufacturing Technology Management*, *19*(2), 217–234. https://doi.org/10.1108/17410380810847927

Taj, S., & Berro, L. (2006). Application of constrained management and lean manufacturing in developing best practices for productivity improvement in an auto-assembly plant. *International Journal of Productivity and Performance Management*, *55*(3/4), 332–345. https://doi.org/10.1108/17410400610653264

Taj, S., & Morosan, C. (2011). The impact of lean operations on the Chinese manufacturing performance. *Journal of Manufacturing Technology Management*, *22*(2), 223–240. https://doi.org/10.1108/17410381111102234

Tan, K., Eze, U., & Chong, S. (2012). Effects of Industry Type on ICT Adoption among Malaysian SMEs. *Journal of Supply Chain and Customer Relationship Management*, *1*. https://doi.org/10.5171/2012.113797

Taylor, W. A., & Wright, G. H. (2006). The contribution of measurement and information infrastructure to TQM success. *Omega*, *34*(4), 372–384. https://doi.org/10.1016/j.omega.2004.12.003

Thanki, S., & Thakkar, J. (2014). Status of lean manufacturing practices in Indian industries and government initiatives: A pilot study. *Journal of Manufacturing Technology Management*, *25*(5), 655–675. https://doi.org/10.1108/JMTM-05-2012-0057

The 11th Malaysia Plan. (2016). *The Eleventh Malaysia Plan*. Putrajaya, Malaysia. Retrieved from http://rmk11.epu.gov.my/index.php/en/

The Star, & Bernama News. (2014). SME contribution to GDP to hit 41%: Mustapa. *The Star*, (February 2014), 1–8. Retrieved from http://www.thestar.com.my/Business/Business-News/2014/02/18/SME-contribution-to-GDP-to-hit-41pc/?style=biz

Thomas, A., Barton, R., & Chuke-Okafor, C. (2009). Applying lean six sigma in a small engineering company – a model for change. *Journal of Manufacturing Technology Management*, *20*(1), 113–129. https://doi.org/10.1108/17410380910925433

Timans, W., Antony, J., Ahaus, K., & Van Solingen, R. (2012). Implementation of Lean Six Sigma in small- and medium-sized manufacturing enterprises in the Netherlands. *Journal of the Operational Research Society*, *63*(3), 339–353. https://doi.org/10.1057/jors.2011.47

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, *14*(3), 207–222. https://doi.org/10.1111/1467-8551.00375

Trist, E. (1981). *The Evolution of Socio-technical Systems: A Conceptual Framework and an Action Research Program*. Ontario Ministry of Labour, Ontario Quality of Working Life Centre.

Trist, E., & Baumforth, K. (1951). Some Social and Psychological Consequences of the Longwall Method of Coal Getting. *Human Relations*, *4*(3), 38. Retrieved from http://www.moderntimesworkplace.com/archives/archives.html

Trkman, P., & McCormack, K. (2009). Supply chain risk in turbulent environments-A conceptual model for managing supply chain network risk. *International Journal of Production Economics*, *119*(2), 247–258. https://doi.org/10.1016/j.ijpe.2009.03.002

Ulewicz, R., & Kuceba, R. (2016). Identification of problems of implementation of Lean concept in the SME sector. *Ekonomia i Zarzadzanie*, *8*(1), 19–25. https://doi.org/10.1515/emj-2016-0002

United Nations. (2012). *World Economic Situation and Prospects 2012*. New York. Retrieved from http://www.un.org/en/development/desa/policy/wesp/wesp_archive/2012chap1.

pdf

Upadhye, N., Deshmukh, S. G., & Garg, S. (2010). Lean manufacturing system for medium size manufacturing enterprises: an Indian case. *International Journal of Management Science and Engineering Management*, *5*(5), 362–375. Retrieved from http://www.ijmsem.org/upfiles/Download/2010091210362329203.pdf

Upton, D. (1998). Just-in-time and Performance Measurement Systems. *International Journal of Operations & Production Management*, *18*(11), 1101–1110. https://doi.org/10.1108/01443579810231688

Velarde, G. J., Pirraglia, A., van Dyk, H., & Saloni, D. E. (2011). Lean manufacturing in the US South Atlantic Region: an overview of the current state of implementation in the secondary wood industry. *International Wood Products Journal*, *2*(1), 30–37. https://doi.org/10.1179/2042645311Y.0000000006

Venkatraman, N. (1989). The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *Academy of Management Review*, *14*(3), 423–444. https://doi.org/10.5465/AMR.1989.4279078

Venkatraman, N., & Prescott, J. E. (1990). Environment-strategy coalignment: an empirical test of its performance implications. *Strategic Management Journal*, *11*(1), 1–23. https://doi.org/10.1002/smj.4250110102

Vinodh, S., & Joy, D. (2012). Structural Equation Modelling of lean manufacturing practices. *International Journal of Production Research*, *50*(6), 1598–1607. https://doi.org/10.1080/00207543.2011.560203

Wan Ibrahim, W. M. K. M. K., Rahman, M. A. A., Abu Bakar, M. R. R., Bin Wan Ibrahim, W. M. K., Rahman, M. A. A., & Bin Abu Bakar, M. R. (2017). Implementing Lean Manufacturing in Malaysian Small and Medium Startup Pharmaceutical Company. In *IOP Conf. Series: Materials Science and Engineering 184* (Vol. 184, p. 012016). IOP Publishing. https://doi.org/10.1088/1742-6596/755/1/011001

Wang, C.-H., Chen, K.-Y., & Chen, S.-C. (2012). Total quality management, market orientation and hotel performance: The moderating effects of external environmental factors. *International Journal of Hospitality Management*, *31*(1), 119–129. https://doi.org/10.1016/j.ijhm.2011.03.013

Ward, P. T., Bickford, D. J., & Leong, G. K. (1996). Configurations of manufacturing strategy, business strategy, environment and structure. *Journal of Management*, *22*(4), 597–626. https://doi.org/10.1016/S0149-2063(96)90026-4

Ward, P. T., & Duray, R. (2000). Manufacturing strategy in context: Environment, competitive strategy and manufacturing strategy. *Journal of Operations Management*, *18*(2), 123–138. https://doi.org/10.1016/S0272-6963(99)00021-2

Ward, P. T., Duray, R., Leong, G. K., & Sum, C. C. (1995). Business environment, operations strategy, and performance: An empirical study of Singapore manufacturers. *Journal of Operations Management*, *13*, 99–115. https://doi.org/http://dx.doi.org/10.1016/0272-6963(95)00021-J

Ward, P. T., McCreery, J. K., Ritzman, L. P., & Sharma, D. (1998). Competitive Priorities in Operations Management. *Decision Sciences*, *29*, 1035–1046. https://doi.org/10.1111/j.1540-5915.1998.tb00886.x

Ward, P. T., & Zhou, H. (2006). Impact of Information Technology Integration and Lean/Just-In-Time Practices on Lead-Time Performance. *Decision Sciences*, *37*(2), 177–203. https://doi.org/10.1111/j.1540-5915.2006.00121.x

White, R. E. (1993). An Empirical Assessment of JIT in U.S. Manufacturers. *Production and Inventory Management Journal*, *34*(2), 38–42.

White, R. E., Ojha, D., & Kuo, C.-C. (2010). A competitive progression perspective of JIT systems: Evidence from early US implementations. *International Journal of Production Research*, *48*(20), 6103–6124. https://doi.org/10.1080/00207540903226914

White, R. E., Pearson, J. N., & Wilson, J. R. (1999). JIT Manufacturing: A Survey of Implementations in Small and Large U.S. Manufacturers. *Management Science*, *45*(1), 1–15. https://doi.org/10.1287/mnsc.45.1.1

Whitehead, A. L., Julious, S. A., Cooper, C. L., & Campbell, M. J. (2015). Estimating the sample size for a pilot randomised trial to minimise the overall trial sample size for the external pilot and main trial for a continuous outcome variable. *Statistical Methods in Medical Research*, *25*(3), 1057–1073. https://doi.org/10.1177/0962280215588241

Wickramasinghe, G. L. D., & Perera, A. (2016). Effect of Total Productive Maintenance practices on manufacturing performance: Investigation of textile and apparel manufacturing firm. *Journal of Manufacturing Technology Management*, *27*(5), 713–729. https://doi.org/10.1108/EL-01-2017-0019

Wiengarten, F., Gimenez, C., Fynes, B., & Ferdows, K. (2015). Exploring the importance of cultural collectivism on the efficacy of lean practices: Taking an organisational and national perspective. *International Journal of Operations & Production Management*, *35*(3), 370–391.

Womack, J. P. (1997). Lean Enterprise Institute. Retrieved April 19, 2016, from https://www.lean.org/WhatsLean/

Womack, J. P., & Jones, D. T. (1994). From Lean Production to the Lean Enterprise. *Harvard Business Review*. *Mar/Apr94*, 93–103.

Womack, J. P., & Jones, D. T. (1996a). Beyond Toyota: How to Root Out Waste and Pursue Perfection. *Harvard Business Review*, *74*(5), 140–158.

Womack, J. P., & Jones, D. T. (1996b). *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*. New York: Simon and Schuster.

Womack, J. P., & Jones, D. T. (2013). *Lean Thinking: Banish Waste And Create Wealth In Your Corporation* (revised). New York: Simon and Schuster.

Womack, J. P., Jones, D. T., & Roos, D. (1990). *The Machine That Changed the*

World: The Story of Lean Production. Simon and Schuster.

Wong, C. Y., Boon-itt, S., & Wong, C. W. Y. (2011a). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. *Journal of Operations Management*, *29*(6), 604–615. https://doi.org/10.1016/j.jom.2011.01.003

Wong, Y. C., & Wong, K. Y. (2011b). Approaches and practices of lean manufacturing: the case of electrical and electronics companies. *African Journal of Business Management*, *5*(6), 2164–2174. https://doi.org/10.5897/AJBM10.404

Wong, Y. C., Wong, K. Y., & Ali, A. (2009). A study on lean manufacturing implementation in the Malaysian electrical and electronics industry. *European Journal of Scientific Research*, *38*(4), 521–535. https://doi.org/10.1109/IACSIT-SC.2009.44

Wood, S. J., Stride, C. B., Wall, T. D., & Clegg, C. W. (2004). Revisiting the use and effectiveness of modern management practices. *Human Factors and Ergonomics In Manufacturing*, *14*(4), 415–432. https://doi.org/10.1002/hfm.20006

World Bank. (2016). *Malaysia Economic Monitor: Leveraging Trade Agreements* (No. 106711). Washington, DC. Retrieved from http://documents.worldbank.org/curated/en/897661467211093280/Malaysia-economic-monitor-leveraging-trade-agreements

World Bank Group. (2018). *Productivity Unplugged: The Challenges of Malaysia's Transition into a High-Income Country*. Washington, D.C. Retrieved from http://documents.worldbank.org/curated/en/185861527855417221/Productivity-unplugged-the-challenges-of-Malaysias-transition-into-a-high-income-country

Worley, J. M., & Doolen, T. L. (2006). The role of communication and management support in a lean manufacturing implementation. *Management Decision*, *44*(2), 228–245. https://doi.org/10.1108/00251740610650210

Wu Chun, Y. (2003). Lean manufacturing: a perspective of lean suppliers. *International Journal of Operations & Production Management*, *23*(11), 1349–1376. https://doi.org/10.1108/01443570310501880

Yadav, V., Jain, R., Mittal, M. L., Panwar, A., & Lyons, A. (2018). The impact of lean practices on the operational performance of SMEs in India. *Industrial Management & Data Systems*. https://doi.org/10.1108/IMDS-02-2018-0088

Yang, C.-C., & Yang, K.-J. (2013). An Integrated Model of the Toyota Production System with Total Quality Management and People Factors. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *23*(5), 450–461. https://doi.org/10.1002/hfm

Yang, C.-C., Yeh, T.-M., & Yang, K.-J. (2012). The implementation of technical practices and human factors of the toyota production system in different industries. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *22*(6), 541–555. https://doi.org/10.1002/hfm.20296

Yang, M. G. M., Hong, P., & Modi, S. B. (2011). Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms. *International Journal of Production Economics*, *129*(2), 251–261. https://doi.org/10.1016/j.ijpe.2010.10.017

Yin, R. K. (2013). *Case Study Research: Design and Methods* (5th ed.). SAGE Publications.

Yusof, S. M., & Aoki, K. (2016). Proposed Lean Sustained Factors. In *Sixth International Conference on Industrial Engineering and Operations Management* (Vol. March, pp. 2407–2417). Kuala Lumpur, Malaysia.

Yusup, M. Z., Wan Mahmood, W. H., Salleh, M. R., & Mohd Yusof, A. S. (2014). The Adoption of Lean and Cleaner Production – A Preliminary Study for Malaysia Manufacturing Industry. In *Applied Mechanics and Materials* (Vol. 660, pp. 949–953). Trans Tech Publications. https://doi.org/10.4028/www.scientific.net/AMM.660.949

Zeng, J., Zhang, W., Matsui, Y., & Zhao, X. (2017). The impact of organizational context on hard and soft quality management and innovation performance. *International Journal of Production Economics*, *185*, 240–251. https://doi.org/10.1016/j.ijpe.2016.12.031

Zhang, D., Linderman, K., & Schroeder, R. G. (2012). The moderating role of contextual factors on quality management practices. *Journal of Operations Management*, *30*(1–2), 12–23. https://doi.org/10.1016/j.jom.2011.05.001

Zhang, L., Narkhede, B. E., & Chaple, A. P. (2017). Evaluating lean manufacturing barriers: an interpretive process. *Journal of Manufacturing Technology Management*, *28*(8), 1086–1114. https://doi.org/10.1108/JMTM-04-2017-0071

Zhou, B. (2016). Lean principles, practices, and impacts: a study on small and medium-sized enterprises (SMEs). *Annals of Operations Research*, *241*(1–2), 457–474. https://doi.org/10.1007/s10479-012-1177-3

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business Research Methods* (9th ed.). Cengage Learning.

Zu, X. (2009). Infrastructure and core quality management practices: how do they affect quality? *International Journal of Quality & Reliability Management*, *26*(2), 129–149. https://doi.org/10.1108/02656710910928789